Motivating Tomorrow’s Scientists to be Students of Teaching and Learning

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BACKGROUND
• Graduate students in science are intensely focused on learning about their chosen discipline area.
• Traditionally, the central focus of training for future faculty in the sciences includes the research methods and practices that are central to their discipline.
• Many future faculty will accept teaching appointments in their future positions, yet few will have experience, education, or training in teaching and learning prior to being thrust into the classroom.
• The goal was to create a knowledge base regarding the conceptualizations of scientists-in-training toward teaching and learning that could be used to help prepare graduate students in the sciences for their roles as future college teachers.

APPROACH
• The project followed a graduate level course in Animal Science, taught in Spring 2004, with an enrollment of 13 graduate and professional students.
• The course included a theoretical basis in pedagogy, practical ideas for teaching, a scholarly reflection of teaching and learning, a teaching demonstration, and stimulated recall reflection of the teaching process.
• The course was designed to help students understand their perceptions associated with teaching and to reflect upon how their perceptions and conceptualizations of teaching relate to the learning outcomes of their future students.
• In this part of the study, reflections on teaching and learning and teaching philosophies were obtained at the beginning and end of the semester.

The Reflections Module poses a series of questions asking the reader to identify their views about learning and teaching. Feedback comes in the form of observations about typical responses based upon results from the project.

How do you prefer to learn?

From the results of your own inventory, what did you learn about yourself as a learner? What does this suggest about your current (or future) students as learners?

Learning Styles Inventory*

How does teaching occur?

Preliminary conclusions are consistent with the findings of others that teachers in the sciences are most likely to view teaching through the lens of knowledge transmission.

A few other reflective questions included in the module are:

How does learning occur?
How do typical students learn?
What do you believe about learning?

How does teaching occur?
What have you learned, about yourself as a teacher?
What learning goals do you have for your students?
How will you know when learning has occurred?
What did the “best” teachers do that made them effective?

The final section of the Reflections Module includes worksheets that help pull together the student’s reflections into a statement of Teaching Philosophy.

CONCLUSIONS
• Preliminary conclusions are consistent with the findings of others that teachers in the sciences are most likely to view teaching through the lens of knowledge transmission.
• The novice science teachers often approach teaching based upon what they observed through their years as a student engaged in the learning process.

Acknowledgements
• Financial support: Teaching Enhancement Grant, College of ACES, Office of Academic Programs
• Reflections Module will be posted on the Learning Centered Teaching Approaches website: http://lctdev.aces.uiuc.edu/SoTL/teachers4.html

APPROACH

The course included a theoretical basis in pedagogy, practical ideas for teaching, a scholarly reflection of teaching and learning, a teaching demonstration, and stimulated recall reflection of the teaching process.

A sample of the Reflections Module section on how students think about learning is provided:

How do you prefer to learn?

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Learning Styles Inventory*

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Consider after Reflections #2 & 3

After thinking about the learning process in general, you were asked to reflect on your own individual process as a learner, because how you think about learning is shaped by who you are as a learner. The following is a partial list of how and why those thoughts can potentially be problematic for you as a future teacher:

• In general different people learn differently. Not all of your students learn the same way that you learn. As an individual with an advanced degree, you are a much different type of learner than the average student sitting in your classroom. You probably have succeeded in part because the type of learner you are has allowed you to excel in your field relative to many of your contemporaries who did not pursue your field.
• Our default approach usually is to teach the way we prefer to learn. Stepping your this comfort zone and effectively accounting for the diverse spectrum of learning styles that may exist among your students can be a daunting task.

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